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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,264	09/18/2003	Richard M. Ehrlich	PANA-01046USC	5462

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EXAMINER

FIGUEROA, NATALIA

ART UNIT PAPER NUMBER

2651

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/665,264	Applicant(s) EHRlich, RICHARD M.	
	Examiner Natalia Figueroa	Art Unit 2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/18/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 18 September 2003 (09/18/2003) is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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4. Claims 1-18, 19-36, 37-42 and 43-48 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1-10, 11-20, 21-25 and 26-30 of copending Application No. 10/665,226. Although the conflicting claims are not identical, they are not patentably distinct from each other because the obvious apparatus for performing the method is recited.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 13-15 and 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Bliss (USPN 5,585,975).

RE claim 13, Bliss discloses a disk drive system for improving servo demodulation robustness, comprising a filter to filter an amplitude error signal and produce a servo automatic gain control (AGC) signal therefrom (col. 7, lines 62-65); and a programmable limiter to keep the servo AGC signal within a desired range, before the servo AGC signal is used for feedback control (col. 9, lines 17-21).

RE claim 14, Bliss discloses that the programmable limiter limits an output of the filter to thereby keep the servo AGC signal within a desired range, before the servo AGC signal is provided to a variable gain amplifier (VGA) of a read channel (col. 9, lines 17-21).

RE claim 15, Bliss further discloses that the programmable limiter is within the filter (col. 9, lines 17-21).

Re claims 31-33, Bliss and Glover are relied upon for the same reasons of rejections as stated in the above rejections of claims 13-15. Claims 31-33 have limitations similar to those treated in the above rejections of claims 13-15, and are met by the references as discussed above. Claims 31-33 however also recite the following limitation; a phase locked loop. However, Bliss further discloses such on (col. 3, lines 40-49).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2, 11, 17, 19-20, 29 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bliss in view of Glover (USPN 6,108,153).

RE claim 1, Bliss discloses a disk drive system for improving servo demodulation robustness, comprising a read channel to read a servo wedge and produce a servo signal therefrom (abstract, fig. 1 and col. 7, lines 39-40); an amplitude measuring circuit to measure an amplitude of the servo signal (col. 7, lines 54-55); a filter to filter the error signal and produce a servo automatic gain control (AGC) signal therefrom (col. 7, lines 62-65); and a programmable limiter to keep the servo AGC signal within a desired range, before the servo AGC signal is used for feedback control (col. 9, lines 17-21). Bliss fails to explicitly teach a summer to produce an error signal representing a difference between the measured amplitude and a target amplitude.

However, Glover discloses such on (fig. 3 and col. 10, lines 58-65). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system as disclosed by Bliss with the above teachings from Glover to include a position error signal circuit hence providing information on the servo signal therefore adjusting the amplitude of the signal as required.

RE claim 2, Bliss further discloses that the programmable limiter limits an output of the filter to thereby keep the servo AGC signal within a desired range, before the servo AGC signal is provided to a variable gain amplifier (VGA) of the read channel (col. 9, lines 17-21).

RE claim 11, Bliss further discloses that the programmable limiter is within the filter (col. 9, lines 17-21).

RE claim 17, Bliss discloses a disk drive system, comprising a disk having servo wedges and data fields (figs. 2a-2b); a path to condition the signal produced by the at least one head and to produce a conditioned signal therefrom, the path including a variable gain amplifier (VGA) (fig. 3 and col. 4, lines 58-59); a servo demodulator including a servo automatic gain controller to adjust an amplitude of the conditioned signal by providing servo automatic gain control (AGC) values to the VGA (fig. 3 and disclosure thereof and col. 4, lines 58-59); and a programmable limiter to keep the servo AGC values within a desired range (col. 9, lines 17-21).

Bliss fails to explicitly teach a disk drive system comprising a head disk assembly including at least one head to read the servo wedges and data fields and to produce a signal representative of information stored in the servo wedges and data fields. However, Glover discloses such on (fig. 1 and col. 4, lines 11-24). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system as

disclosed by Bliss with the above teachings from Glover to include a disk assembly containing an amplitude adjusting circuit, hence adjusting the amplitude as desired to avoid errors.

Re claims 19-20, Bliss and Glover are relied upon for the same reasons of rejections as stated in the above rejections of claims 1-2. Claims 19-20 have limitations similar to those treated in the above rejections of claims 1-2, and are met by the references as discussed above. Claims 19-20 however also recite the following limitations; a phase measuring circuit and a phase locked loop. However, Bliss further discloses such on (col. 3, lines 40-49).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system as disclosed by Bliss with the above teachings from Glover to include a timing error signal circuit hence providing information on the servo signal therefore adjusting the amplitude of the signal as required.

RE claim 29, Bliss further discloses that the programmable limiter is within the filter (col. 9, lines 17-21).

Re claim 35, Bliss and Glover are relied upon for the same reasons of rejections as stated in the above rejections of claim 17. Claim 35 has limitations similar to those treated in the above rejections of claim 17, and is met by the references as discussed above. Claim 35 however also recites the following limitations; a phase locked loop including an oscillator. However, Bliss discloses such on (col. 3, lines 40-49).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system as disclosed by Bliss with the above teachings from Glover to include a disk assembly containing a timing adjusting circuit, hence adjusting the frequency as desired to avoid errors.

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9. Claims 3-5, 21-23, 37 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bliss and Glover and further in view of Cloke et al (USPN 6,487,032), hereinafter Cloke.

RE claim 3, the combination of Bliss and Glover is relied upon for the same reasons of rejection as stated above. Bliss and Glover fails to explicitly teach a plurality of heads, and wherein the desired range is dependent at least in part on which head is being used to read a servo wedge.

However, Cloke discloses such on (col. 5, lines 7-8 and 13). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system as disclosed by Bliss and Glover with the above teachings from Cloke hence providing the right frequency for each head, hence avoiding errors.

RE claim 4, Cloke further discloses a zone bit recorded disk including a plurality of zones, and wherein the desired range is dependent at least in part on which zone is being read (col. 11, lines 51-55, col. 11, line 63-col. 12, line 10).

RE claim 5, claim 5 has limitations similar to those treated in the above rejections of claims 3 and 4, and are met by the references as discussed above.

RE claims 21-23, Bliss, Glover and Cloke are relied upon for the same reasons of rejection as stated in the above rejections of claims 3-5. Claims 21-23 have limitations similar to those treated in the above rejections of claims 3-5, and are met by the references as discussed above. Claims 21-23 however also recite the following limitation; a phase locked loop. However, Bliss further discloses such on (col. 3, lines 40-49).

RE claim 37, Bliss discloses a disk drive system, comprising a disk having servo wedges and data fields (figs. 2a-2b); a path to condition the signal produced by the at least one head and

to produce a conditioned signal therefrom (fig. 3 and col. 4, lines 58-59); and a servo demodulator including a servo automatic gain controller to adjust an amplitude of the conditioned signal (fig. 3 and disclosure thereof and col. 4, lines 58-59).

Bliss fails to explicitly teach a head disk assembly including at least one head to read the servo wedges and data fields and to produce a signal representative of information stored in the servo wedges and data fields; and a microprocessor to replace the AGC value stored in the register with a value within a desired range, when the AGC value stored in the register is outside the desired range. However, Glover discloses such assembly in (fig. 1 and col. 4, lines 11-24) and such microprocessor in fig. 1 and col. 5, lines 31-37).

Bliss and Glover fail to explicitly teach a register to store an automatic gain control (AGC) value for the servo automatic gain controller. However, Cloke discloses such on (fig. 5 and col. 21, line 62-col. 22, line 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system as disclosed by Bliss and Glover with the above teachings from Cloke hence providing and adjusting the right gain amplitude, hence avoiding data errors.

Re claim 43, Bliss, Glover and Cloke are relied upon for the same reasons of rejection as stated in the above rejections of claim 37. Claim 43 has limitations similar to those treated in the above rejections of claim 37, and is met by the references as discussed above. Claim 43 however also recites the following limitation; a phase locked loop. However, Bliss further discloses such on (col. 3, lines 40-49).

Allowable Subject Matter

10. Claims 6-10, 12, 16, 18, 24-28, 30, 34, 36, 38-42 and 44-48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Note that claims 6-10, 12, 16, 18, 24-28, 30, 34, 36, 38-42 and 44-48 are also rejected under a provisional nonstatutory obviousness-type double patenting rejection and must overcome this rejection as well.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents are cited to further show the state of the art with respect to servo demodulation.

a) Abramovitch (Customizable Coherent Servo Demodulation for Disk Drives):

Discloses disk drive servo demodulators.

b) Hirano et al (USPN 6,504,663): Discloses gain control of an AGC amplifier.

c) Ellis (USPN 6,678,110): Discloses a servo demodulation method.

d) Bliss (USPN 5,966,258): Discloses a gain control loop.

e) Romano et al (USPN 5,477,103): Discloses servo system controller.

f) Sordello et al (USPN 4,188,646): Discloses a servo system.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalia Figueroa whose telephone number is (571) 272-7554. The examiner can normally be reached on Monday - Thursday 8:30-5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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